



THE UNIVERSITY *of* EDINBURGH

## Edinburgh Research Explorer

### Fuel Poverty and High Rise Living

**Citation for published version:**

De Haro, MT & Koslowski, A 2013, 'Fuel Poverty and High Rise Living: Using Community-Based Interviewers to Investigate Tenants' Inability to Keep Warm in their Homes', *Journal of Poverty and Social Justice*, vol. 21, no. 2, pp. 109-121 . <https://doi.org/10.1332/175982713X668917>

**Digital Object Identifier (DOI):**

[10.1332/175982713X668917](https://doi.org/10.1332/175982713X668917)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Peer reviewed version

**Published In:**

Journal of Poverty and Social Justice

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



# **Fuel Poverty and High Rise Living: Using community-based interviewers to investigate tenants' inability to keep warm in their homes**

## **Abstract**

The number of households living in fuel poverty across the UK is on the increase. This paper explores the experience of those living in fuel poverty, seeking to understand the reasons for lack of warmth in homes. Using a case study approach, 101 face-to-face structured interviews with residents of a high-rise block of flats in Edinburgh were conducted by trained community-based interviewers, many of whom had experience of fuel poverty themselves. As such, this research contributes to our understanding of fuel poverty by giving a voice to those directly affected.

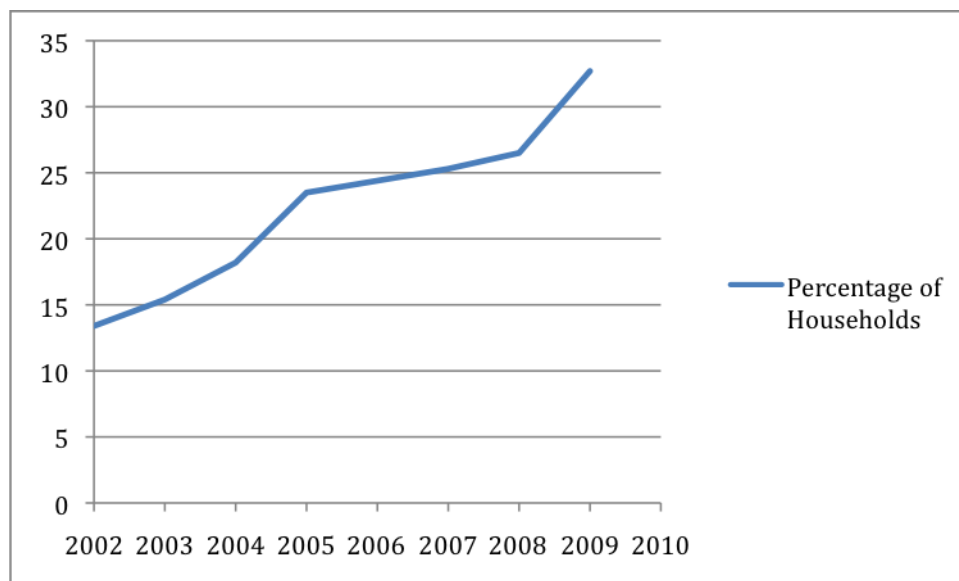
## **Background**

*"I couldn't believe the state of the high rise housing stock."*<sup>i</sup>

Fuel poverty is a form of poverty specifically relating to inadequate heating in the home. The official definition of a UK household in fuel poverty is one which spends more than 10% of their household income on fuel to keep their homes in a satisfactory condition (Boardman, 1991; Scottish Executive, 2002; Hills, 2011). The prevalence of fuel poverty in the UK has been rapidly increasing. In Scotland, where this research was carried out, the percentage of households in fuel poverty has more than doubled from 13% to 32% during the past decade (figure 1). Among those most affected by fuel poverty are residents of poorly insulated social housing, in particular high rise blocks of flats. High fuel costs, low household income and fuel inefficient dwellings are considered to be the three main causes of fuel poverty (Scottish Executive, 2009; Boardman, 2010). Fuel prices have been increasing over the last few years and have had a greater impact on the fuel poverty of low-income households compared with higher-income households (Baker, 2011).

It is very likely that a household experiencing fuel poverty may also be affected by other forms of poverty, such as child poverty and income poverty and thus, some may be reluctant to embrace the concept, as it detracts from the basic problem of lack of income and access to resources. This argument notwithstanding, by focusing on this single dimension of poverty, we gain insight into other environmental and technical aspects which contribute to people being cold in their homes and which might be more swiftly remedied than other more enduring foundations of poverty (Anderson *et al.*, 2010; Fahmy, 2011).

## **Figure 1: Trends in Scottish House Condition Survey (SHCS) Fuel Poverty Figures**



(Source: SHCS Key Findings, 2009)

The aim of this paper is to add new insight to our existing knowledge about the experience of living in fuel poverty. Using community-based interviewers to gain access to an often hard to reach population, those directly affected can tell of their understanding of the reasons for their living in cold homes. Respondents are also able to give voice to their resilience and tell of their ways of coping with fuel poverty.

## **Government Policies and Fuel Poverty**

*“After all the dampness campaigns we have fought in the past, we still have damp houses.”*

A variety of legislation, policies and schemes at European, UK, Scottish and local government levels have been put in place to tackle fuel poverty. Of the three main causes of fuel poverty, low disposable household income and the high price of domestic fuel are matters allocated to Westminster, while poor energy efficiency of the home comes under the local remit of Holyrood (Scottish Executive, 2002). The EU also has a role in stipulating directives related to energy performance and consumer regulation.

Current nationwide policies include the winter fuel payment, the cold weather payment and the social tariff (Boardman, 2010). The winter fuel payment is a non-taxable universal benefit given to anybody over 60 years, increasing with age. The cold weather payment is an income-related benefit paid during particularly cold spells which last for seven or more consecutive days. The social tariff or “warm house discount” obliges energy suppliers to provide certain benefits for certain customers. Additionally, the Scottish Government implemented the Energy Assistance Package (EAP), which provides consumers with advice on how to reduce their CO<sub>2</sub> emissions and how to save money (Scottish Executive, 2010).

In 2002, the Scottish Government set a target to eradicate fuel poverty by 2016, though as figure 1 highlights, the number of households in fuel poverty is increasing. In light of rising fuel costs and economic recession, there is the potential for this situation to worsen considerably. Evidently, the policy solutions in place are not tackling fuel poverty adequately.

### **Cold Homes and Low Income Groups**

*“I am a native Kenyan. People in Africa think that people in the UK don’t have to live in poverty – they have no idea”.*

Generally, local authority tenants experience difficulties covering their fuel bills (Fung *et al.*, 2006). Low income families are also more likely to live in cold homes due to their dwellings being more likely to suffer from poor efficiency of building material, problematic heating installations and appliances, poor housing maintenance, and technical deficits of the original construction of the building (Santamouris *et al.*, 2006). As a result, heating systems within housing infrastructures may operate to exacerbate poverty (Buzar, 2007). In particular, high rise flats are often poor constructions with problems such as damp, low thermal qualities, poor sound insulation, and expensive and thus, neglected building maintenance, all of which can add up to a poor fuel outcome (Green, 2007; Baker, 2011; GoWell, 2011). Also, due to building regulations, high rise flats must have off-gas heating systems, so that residents cannot benefit from gas central heating, but must mostly rely on electricity for heating, which is generally more expensive.

A high percentage of low income households, especially those who receive some mean-tested benefits or disability benefits have a prepayment meter (PPM) (Doble, 2000; Speak, 2000). PPMs are normally installed for debt recovery, and to remove the worry of receiving an unexpected bill. However, they prevent customers from benefiting from the cheapest tariffs, and are expensive to remove (the cost falling on the customer). The Energy Secretary Chris Huhne’s recent advice<sup>ii</sup> to “switch energy suppliers” is not common practice amongst low income groups (Mummery & Reilly, 2010).

Low income households in a cold climate may find they are needing to choose between food and heat (Bhattacharya *et al.*, 2003; O’Neill *et al.*, 2006; Green, 2007; Friends of the Earth, 2011). In turn, this needing to prioritise either heat or food, rather than enjoying both, has negative implications for health (Somerville *et al.*, 2000; DTI, 2001; Wilkinson *et al.*, 2004; Rudge & Gilchrist, 2005; El-Asari & El-Silimy, 2008). Being in fuel poverty is also associated with stress and mental health problems such as depression (Harrington *et al.*, 2004; Anderson *et al.*, 2010; Friends of the Earth, 2011).

Those experiencing life on a low income and in poorly heated households report different strategies for coping with cold weather such as self-rationing, reducing the hours and areas heated, visiting families and friends, going to bed early, having hot drinks, adding extra layers and blankets, and attempting insulation using tape around windows and hanging thick curtains (Harrington *et al.* 2004; Wright, 2004; O'Neill *et al.*, 2006; Mummery & Reilly, 2010). Electric storage heaters are often installed in high rise flats, but residents report problems with them, resulting in their resorting to alternative additional heating (Fung *et al.*, 2006). Extreme reactions to worry about fuel bills can include self-disconnection (Doble, 2000; Speak, 2000; Anderson *et al.*, 2010).

In light of the discussion above, three questions are addressed in order to explore the extent of and underlying reasons for fuel poverty: (1) Are respondents having difficulties in keeping warm, and if so, why? (2) Are respondents choosing between food and heat due to budget limitations? (3) Is respondent health affected by a lack of heating?

### **Community-Based Interviewing: A case study in North Edinburgh**

*"I have lived here for 25 years but I didn't realise that in the 21<sup>st</sup> century people had to live in such abysmal conditions"*

The research was conducted in collaboration with the North Edinburgh Trust (NET), a community development trust that aims to maximise community influence, address poverty and bring economic and community benefits to the North Edinburgh area. This research was part of a "Fuel Poverty Audit"; a community-based research study funded by the Climate Challenge Fund. The study sought to describe the experiences and attitudes of the residents of the high flats in an area in North Edinburgh living in fuel poverty. These flats were chosen for this typical case study of fuel poverty due to the following set of characteristics. They are supplied only with electricity and so they are difficult to heat (and hard to "treat"). Their residents are generally on low incomes, thus the likelihood of individual residents living in fuel poverty was high. Furthermore, the North Edinburgh area is exposed to severe weather conditions as a result of its proximity to the sea.

The data collection was carried out in January and February 2011, which was a particularly cold winter, by community-based interviewers, some of whom had experience of living in fuel poverty. Interviews were conducted in 101 flats in the case study area. The use of community interviewers was a key feature of this research. The level of access and engagement achieved would have been much harder for professional social researchers from beyond the community. The community interviewers' own experiences of fuel poverty and their strong interconnections with the community allowed an unusual level of access due to

the greater trust and empathy afforded to them by respondents. The community interviewers input into the development of the interview schedule and subsequent thematic analysis was also highly beneficial for improving the validity of the study.

The mode of data collection was a paper based questionnaire filled in during a face-to-face interview. The questionnaire contained a mixture of closed and open questions. The closed questions captured quantifiable information such as: weekly amount spent on electricity; the number of rooms heated; the number of heating devices on, and the number of hours per day heating was switched on. The open questions were designed to explore why residents were not warm enough, why their income might not be sufficient to meet their heating needs, and whether health problems were affected by the cold. Furthermore, focus group and individual discussions were held with the community interviewers. The open-ended questions were transcribed and analysed thematically with a qualitative data analysis package.

The profile of the respondents living in the high rise flats included elderly people, single parents, unemployed, people with disabilities and working families. The majority of respondents had higher fuel needs than might be expected, as they spent more time at home due to unemployment, retirement, disability or child care. Respondents were living in poor quality accommodation which was ineffectively insulated and fuel inefficient. As tenants, they were dependent on their landlord, in this case the City Council, for repairs.

### **Key Factors in Fuel Poverty<sup>iii</sup>**

#### **Heating is too expensive for those on low incomes**

72% of respondents with a variety of household profiles (single parents, unemployed, retired, families) reported that they simply could not afford their heating needs. As such, under-heating was a common practice. Often only the living room, and possibly one bedroom would be heated for only a few hours a day. Part time work, often due to poor health, seemed to be associated with spending very little on electricity (between £10-£15 per week).

*“I do not have enough income to heat the flat as much as I would like to so I have to budget which rooms to heat; and there is damp and condensation which affects that decision”*

There were various coping strategies, ranging from putting on more clothes, sitting under a duvet, taking extra showers, turning on the oven, sleeping and living in one room.

*“I can’t afford to heat my home. When it is cold, I just use a duvet”*

*“I stay in bed during the winter to save on heating costs”*

Others reported going out or staying with relatives when it got too cold.

*“I sometimes go to the library to get warm so I can switch the electricity off in my flat”*

*“When the children are out of school for the summer holiday we take them to a friend’s house for a few days because the heating is too expensive (and the flat is too cold).”*

This last quote also indicates that keeping warm is not just a winter problem, but rather an issue throughout the year.

### **Electric storage heaters**

One of the key recurrent themes in the interviews and from interviewers’ feedback were in relation to electric storage heaters. A key finding was the extent of low or non-usage of the electric heating system, which tenants attributed to inefficiency, the high cost of running the heating system, the poor state of the storage heaters and also lack of knowledge about correct usage. According to local tenants, the storage heaters were at least 20 years old. The poor quality of the electric storage heaters was seen as one of the main problems for respondents.

Each flat had been issued with electric storage heaters, which in theory should be able to allow residents to use electricity during off-peak times to save money, and then to provide a steady heat during the day. A potential advantage of electric heating is the possibility to use (often complex) off-peak tariffs such as Economy 7<sup>iv</sup> to benefit from cheaper fuel (Boardman, 2010). However, this was not the experience of residents as illustrated below:

*“They (storage heaters) are very expensive to use. The electric storage heaters have packed up and the daily costs of using them are too high. And we don’t know how to use them.”*

*“I do not put the electric storage on any longer because the smell of the air affects my breathing.”*

*“I do not use the electric heaters because they are crap, and they don’t heat the room enough. I get condensation.”*

There was a general feeling among the residents that the storage heaters are very expensive to run. Those who said that they kept the storage heater on 24 hours usually meant, in practice, that they simply switched the system on at the start of the winter season and did not otherwise touch any of the controls. Many tenants were unaware that the output dial must be turned off at night to store maximum heat during the cheaper Economy 7 overnight period. If this is not done, heat is being released at night when it is less needed and it costs extra to store the heat that is being lost.

Given the problems with the electric storage heaters, many respondents were instead using more expensive alternative forms of heating such as halogen, oil, calor gas or fan heaters. Whilst these alternative forms of heating are more expensive than the storage heaters per KWh, people reported feeling more in control of their energy use as they were better able to control the timing and location of the heating with these devices.

*"I only heat one room with a halogen heater. I use the 2<sup>nd</sup> bedroom as a living room. I only use the bathroom fan when it is very cold and necessary."*

*"Sometimes I have to turn the oven on to get extra heat in the property"*

### **Housing conditions and lack of Council response**

The storage heaters were often reported as broken. Others reported that the electric heaters had not been serviced in years.

*"I do not use the electric heaters because they do not work so instead I use the electric fire. I have asked the Council to replace them"*

The following illustration is an example of how residents said they were feeling about the service from the Council. This family had a young child. They reported that their storage heaters were not working properly and that they had to spend £35 a week on electricity. They said that they had reported the faulty heaters on a number of occasions but nobody had come to check them. During the recent bad weather they had had to borrow money from their family to heat the flat; and their relatives had also helped by bringing them food. The respondents said they felt "abandoned".

*"The Council do not care about these flats; they are leaving them to fall down".*

Dampness, condensation and draughts were some of the other main worries for tenants. Many respondents were living in damp flats, with mould on walls, cracks in the ceiling and balcony doors that would not shut properly. One respondent told of how she had complained to the Council about the dampness but the Council said it was condensation and told her to open the window. She said (as did others) that their clothes were damp in their wardrobe and that the wallpaper in the bedroom and the kitchen was also damp.

*"I don't use the electric storage heaters because they don't work well. Also, there is a bad dampness outside the walls. Poor insulation and no draft proofing. There is condensation in the bedroom and the bathroom."*



*“The second bedroom is not in use due to a crack running the length of the ceiling and the mould on walls. The health visitor has intervened on our behalf with the Council. The house was unfit for a new-born baby when we moved in”*

### **Choosing between food and heat**

*“I don’t get enough for both food and heating. I do make a choice between food and heating and I choose food”*

Having to choose between food and heating because of their tight budgets was a common dilemma among respondents. There was the example of a single mother who worked part-time. She had a child who suffered from asthma and she said she had to find other ways to keep herself and her child warm. She told us that the Council helped her with the bills but even then she still has to make a choice between food and heat:

*“Increase in food prices means that I have to juggle finances. Sometimes, I have to sacrifice eating three meals a day in order save money and will use less heating”*

There was a case of a single father living with his young child who has a congenital heart defect. He lost his partner last year; he told us that she passed away due to bronchitis. He said he could only spend £12 per week on electricity.

*“food and household goods are my priority – heating comes second”*

Some respondents reported other expenditure tensions, such as whether to spend on heat or transport, children’s clothes or pets. For example, one respondent needed to keep back enough money to pay for bus fares in order to pick up her granddaughter from school.

### **Health and (lack of ) warmth**

*“Cold often affects our health and we are worried that the cold may have a negative impact on our health”*

Respondents living in cold damp homes reported a range of health problems including: colds and chest problems, asthma, arthritis, epilepsy, depression and schizophrenia. Colds and chest problems were the most commonly reported health issue and they were attributed by respondents to living in a cold indoor environment. Several respondents reported that living in a cold flat caused regular colds and chest pains. There were a few parents who said that their children suffered from colds, chest infections and asthma.

*“My children are constantly getting colds and one of the children has asthma and his health gets affected by being cold”*

*“My young child suffers from colds and respiratory problems due to dampness in the flat”*

A retired man brought his medical record, which showed us that he was suffering from a wide range of conditions triggered by cold temperatures and his health problems invariably meant that he had high heating needs.

Some respondents reported that they got depressed and stressed as a result of living in a cold flat and not being able to resolve it.

*“I get stressed out about fuel costs, I am very conscious of my electricity usage and I get really stressed out about not being able to be warm”*

*“I can’t stay in a cold condition, I get depression from cold. I need continuous heating to stay warm. I am often sad if I can’t heat the flat to a warm level. I also fear my health could get worse if I stay long in the cold”*

One respondent, whose bedroom was completely damp, explained to us how having her clothes and shoes affected by the mould, was making her life miserable at work, as colleagues thought she smelled. She told us that the condensation level of the bedroom was very high, that it was a very cold room and that it was affecting the health of everyone in the household.

To sum up, findings show that respondents suffered from a range of physical and mental health problems, which appeared to be exacerbated by inadequate heating.

## **Conclusion**

Using a case study example of high rise flats in North Edinburgh, using trained community-based interviewers, this research adds several new insights to our existing knowledge about fuel poverty. It gives a voice to those most marginalised by fuel poverty – the elderly, unemployed, disabled, and those caring for children. Although the findings cannot be generalised to the whole population who live in council flats in Scotland, or the UK, the findings nevertheless illustrate some of the common issues among low income householders living in cold conditions. There were high levels of fuel poverty among residents, a widespread need to choose between heat and food, a range of resourceful strategies to cope with the cold, and a high proportion of health related issues, such as depression, which residents felt were directly related to the conditions of their homes.

Three questions were addressed in particular: (1) Are respondents having difficulties in keeping warm, and if so, why? (2) Are respondents choosing between food and heat due to budget limitations? (3) Is respondent health affected by a lack of heating?

The respondents confirmed that they were having difficulties keeping warm. In part, this was due to being on low incomes. Fuel was too expensive. However, this was not the whole picture, there were also environmental and technical aspects to their fuel poverty. The research revealed the extent to which electric storage heaters were not being used. There were two principle reasons for this. Firstly, they were often broken. Secondly, respondents did not know how to use them and so distrusted them to use too much electricity for too little heat. The quality of the dwellings, which often suffered from damp, cracks and draughts, also made them difficult to keep warm. From the perspective of respondents, their landlord, the City Council, did not keep on top of the necessary repairs. One policy recommendation from this research would be to ensure tenants have sufficient knowledge to be able to benefit from the use of electric storage heaters, where they are installed. This will not eradicate the fuel poverty in such high rise flats, but it may make a contribution to reducing fuel bills. Also, an individual assessment of the status of electric storage in every dwelling could help to solve some of the problems with faulty storage heaters. Moreover, this would contribute to residents feeling better supported by their landlords, the Council.

The research also found evidence to suggest that people are choosing between food and heat due to not having enough money to afford both.<sup>v</sup> Residents are resourceful in finding alternatives to keeping warm including using public spaces. Some are self-disconnecting their electricity supply in order to save money. The majority of respondents claim they would chose food above heat, but this would seem to vary across studies (Bhattacharya, 2003; Green, 2007). This finding corroborates the existing literature that supports the argument that low income households deal with restricted choices when living on a limited budget.

Finally, whilst this research could not establish a causal link, it did find evidence to suggest that respondent health was negatively affected by fuel poverty. Several authors argue that respiratory problems are correlated with fuel poverty (Platt *et al*, 1989; Brunekreef, 1992; Somerville, *et al.*, 2000; Wright, 2004). There is much in this research to support the existence of an association between living in a cold household and having more colds and respiratory problems. Testimonies also revealed a correlation between fuel poverty and mental health problems, namely depression.

Even though the Government is making efforts to abolish fuel poverty, there are some gaps between policy and practice that need addressing. If prices continue to rise, more people will be living in fuel poverty and we may find that despite high levels of resilience, there comes a breaking point for many living in these sub-optimal conditions.

## **Acknowledgements**

This research was carried out by a collaboration of North Edinburgh Trust and The University of Edinburgh and funded by The Climate Challenge Fund. Particular thanks go to Alison Miller.

## References

Anderson, W., White, V. and Finney, A. (2010) “*You just have to get by*”: *Coping with low incomes and cold homes*, Centre for Sustainable Energy, ([http://www.cse.org.uk/downloads/file/you\\_just\\_have\\_to\\_get\\_by.pdf](http://www.cse.org.uk/downloads/file/you_just_have_to_get_by.pdf)) (accessed 28<sup>th</sup> July 2011).

Baker, W. (2011) “Fuel price inflation and low income consumers”, *Consumer Focus*, (<http://www.consumerfocus.org.uk/files/2011/06/Fuel-price-inflation-and-low-income-consumers.pdf>) (accessed 10 August 2011).

Bhattacharya J., DeLeire T., Haider S. and Currie J. (2003) “Heat or eat? Cold weather shock and nutrition in poor American families”, *American Journal of Public Health*, 93 (7): 1149-1154.

Boardman, B. (1991) *Fuel poverty: From cold homes to affordable warmth*, Belhaven Press: London.

Boardman, B. (2010) *Fixing fuel poverty*, Earthscan: London.

Buzar, S. (2007) “When homes become prisons: The relational spaces of Postsocialist energy poverty”, *Environment and Planning*, 39: 1908-1925.

Doble, M. (2000) “A regulatory policy for self disconnection: An examination of the reasons for and implications of pre-payment meter stoppages”, *Policy Studies*, 23 (3): 229- 243.

DTI (Department of Trade and Industry) (2001) *The UK fuel poverty strategy*, DTI: London.

El-Ansari W. and El-Silimy S. (2008) “Are fuel poverty reduction schemes associated with decreased excess winter mortality in elders? A case study from London”, *Chronic Illness*, 4 (4): 289–294.

Fahmy, E. (2011) “The definition and measurement of fuel poverty”, *Consumer Focus Briefing Paper*, (<http://www.consumerfocus.org.uk/files/2011/06/The-definition-and-measurement-of-fuel-poverty-Dr-Eldin-Fahmy.pdf>) (accessed the 2nd August 2011).

Friends of the Earth (2011) *The health impacts of cold homes and fuel poverty*, Friends of the Earth, ([http://www.foe.co.uk/resource/reports/cold\\_homes\\_health.pdf](http://www.foe.co.uk/resource/reports/cold_homes_health.pdf)) (accessed 1 August 2011).

Fung J., Porteous, A. and T. Sharpe (2006) “The impermanent house: A psycho-analytical approach to improving Glasgow’s social housing scheme”, *PLEA2006 - The 23rd Conference on Passive and Low Energy Architecture*, 6- 8 September, Geneva: Switzerland.

Gowell (Glasgow Community Health and Wellbeing Research and Learning Programme) (2011) *The effects of high-rise living within social rented housing areas in Glasgow*, Gowell ([http://www.gowellonline.com/index.php?option=com\\_docman&task=doc\\_details&gid=205&Itemid=218](http://www.gowellonline.com/index.php?option=com_docman&task=doc_details&gid=205&Itemid=218)) (accessed 23 July 2011).

Green, M. (2007) *Voices of people experiencing poverty in Scotland*, Joseph Rowntree Foundation: York.

(<http://www.jrf.org.uk/sites/files/jrf/2020-experiencing-poverty-scotland.pdf>) (accessed the 23<sup>th</sup> July 2011).

Harrington, B., Heyman, B., Merleau-Ponty, N., Stockton, H., Ritchie, N., and Heyman, A. (2004) “Keeping warm and staying well: Findings from the qualitative arm of the warm homes project”, *Health and Social Care in the Community*, 13 (3): 259-267.

Hills, J. (2011) “Fuel poverty: The problem and its measurement. Interim report of the Fuel Poverty Review”, *CASE Report 69*, CASE: London.

Mummery, H. And Reilly, H. (2010) “Cutting back, cutting down, cutting off”, *Consumer Focus* (<http://www.consumerfocus.org.uk/assets/1/files/2010/02/Cutting-back-cutting-down-cutting-off.pdf>) (accessed 20<sup>th</sup> July 2011).

O’Neill T., Jinks, C. and Squire, A. (2006) ““Heating is more important than food”: Older women’s perceptions of fuel poverty”, *Journal for Housing for the Elderly*, 20 (3): 95–108.

Rudge, J. and Gilchrist, R. (2005) “Excess winter morbidity among older people at risk of cold homes: a population-based study in a London borough”, *Journal of Public Health*, 27(4): 353–358.

Santamouris, M., Kaspis, K., Korres, D., Liviada, I., Pavlou, C., Assimakopoulos, M.N. (2006) “On the relation between the energy and social characteristics of the residential sector”, *Energy and Buildings*, 39: 893–905.

Scottish Executive (2002) *The Scottish fuel poverty statement*, Scottish Government (<http://www.scotland.gov.uk/Publications/2002/08/15258/9955>) (accessed 10<sup>th</sup> July 2011).

Scottish Executive (2009) *Guidance to Local Authorities on fuel poverty*, Scottish Executive (<http://www.scotland.gov.uk/Publications/2009/05/28154359/6>) (accessed 10 August 2011).

Scottish Executive (2010) *Progress report on the Scottish fuel poverty statement 2002*, Scottish Executive (<http://www.scotland.gov.uk/Publications/2010/11/23134646/3>) (accessed 10<sup>th</sup> August 2011).

Somerville, M., MacKenzie, I., Owen, P., Miles, D. (2000) “Housing and health: Does installing heating in their homes improve the health with asthma?”, *Public Health*, 114: 434-439.

Speak, S. (2000) “Back to the well: the hidden costs of service exclusion for the network poor”, *Journal of Consumer Studies and Home Economics*, 24 (1): 49-59.

Wilkinson, P., Pattenden, S., Armstrong, B., Fletcher, A., Kovats, R., Mangtani, P., & McMichael, A. (2004) “Vulnerability to winter mortality in elderly people in Britain: A population based study”, *British Medical Journal*, 329 (7467): 1-6.

Wright, F. (2004) “Old and cold: Older people and policies failing to address fuel poverty”, *Social Policy & Administration*, 38 (5): 488-503.

---

<sup>i</sup> Each sub-section is sub-titled by a quote from a community-based interviewer. Respondents' quotes are presented in the discussion of findings.

<sup>ii</sup> "Huhne calls for consumers to switch energy suppliers", BBC news website, 17/10/11.

<sup>iii</sup> The quotes in this findings section are those of respondents.

<sup>iv</sup> Economy 7 is the most common type of multi-rate meter; you will be charge a lower price for seven hours electricity through the night, but a higher price at all other times This tariff is best suited to consumers who use a lot of electricity at night, for example those with electric storage heaters.

<sup>v</sup> Edwina Currie refuses to accept this situation exists in the UK, BBC News 17/10/11, <http://www.bbc.co.uk/news/uk-15336931>.